



Run I I b Schedule Status

- ◆ Brief overview of April/May reports (milestones)
- ◆ COBRA output, the DOE and change requests
- ◆ Summary/Conclusions



April Milestone Overview

L2/Director's Milestones vs Current Forecast						
(Sorted by L2/Director's Baseline Date)						
Milestone Description	L2/Director's Baseline (4/03)	Last Month's Forecast (3/03)	This Month's Forecast (4/03)	L2/Director's Variance (work days)	Monthly Variance (work days)	Notes
WBS 1.1 Silicon Tracker						
Silicon Prototype Mechanical Stave Built	01/06/03	12/18/02	12/18/02	(6)	0	Complete
L2-L5 Silicon Sensors Released For Production	03/24/03	04/01/03	04/16/03	17	11	Complete
SVX4 Released For Production	10/20/03	09/25/03	09/25/03	(17)	0	
Successful Readout Of Full Silicon Stave	01/29/04	10/17/03	10/13/03	(68)	(4)	
Silicon Module Production Begun	07/15/04	05/21/04	06/10/04	(24)	13	
All Silicon Sensors Delivered And Tested	12/09/04	09/08/04	09/23/04	(53)	11	
All SVX4 Chips Produced And Tested	12/21/04	08/09/04	08/09/04	(93)	0	
All Silicon Hybrids Produced And Tested	03/03/05	11/15/04	11/12/04	(69)	(1)	
Silicon Stave Production Begun	03/08/05	11/30/04	11/29/04	(63)	(1)	
Silicon Module Production And Testing Complete	07/22/05	03/28/05	03/25/05	(83)	(1)	
Downstream Silicon Readout Ready for Installation On Platform	10/25/05	05/24/05	05/24/05	(107)	0	
Silicon Stave Production Complete	12/22/05	08/01/05	07/29/05	(101)	(1)	
South Silicon Complete	02/10/06	08/31/05	08/31/05	(106)	0	
North Silicon Complete	05/04/06	11/08/05	11/07/05	(118)	(1)	
Silicon Ready To Move To DAB	05/25/06	11/29/05	11/28/05	(120)	(1)	
WBS 1.2 Trigger						
L1 Trigger Cal-Trk Match Production and Testing Completed	09/23/04	08/12/04	08/12/04	(29)	0	
L2 Silicon Track Trigger Production and Testing Complete	10/17/05	12/08/04	12/08/04	(212)	0	
L1 Calorimeter Trigger Production And Testing Complete	01/05/06	04/11/05	05/31/05	(146)	35	
L2 Beta Trigger Production And Testing Complete	01/05/06	02/28/05	02/28/05	(211)	0	
L2 Trigger Upgrade Production and Testing Complete	01/05/06	02/28/05	02/28/05	(211)	0	
L1 Central Track Trigger Production And Testing Complete	01/10/06	03/10/05	02/23/05	(217)	(11)	
L1 Trigger Upgrade Production and Testing Complete	01/10/06	04/11/05	05/31/05	(149)	35	
WBS 1.3 Online/DAQ						
Online System Production and Testing Complete	10/07/05	06/17/05	06/17/05	(78)	0	

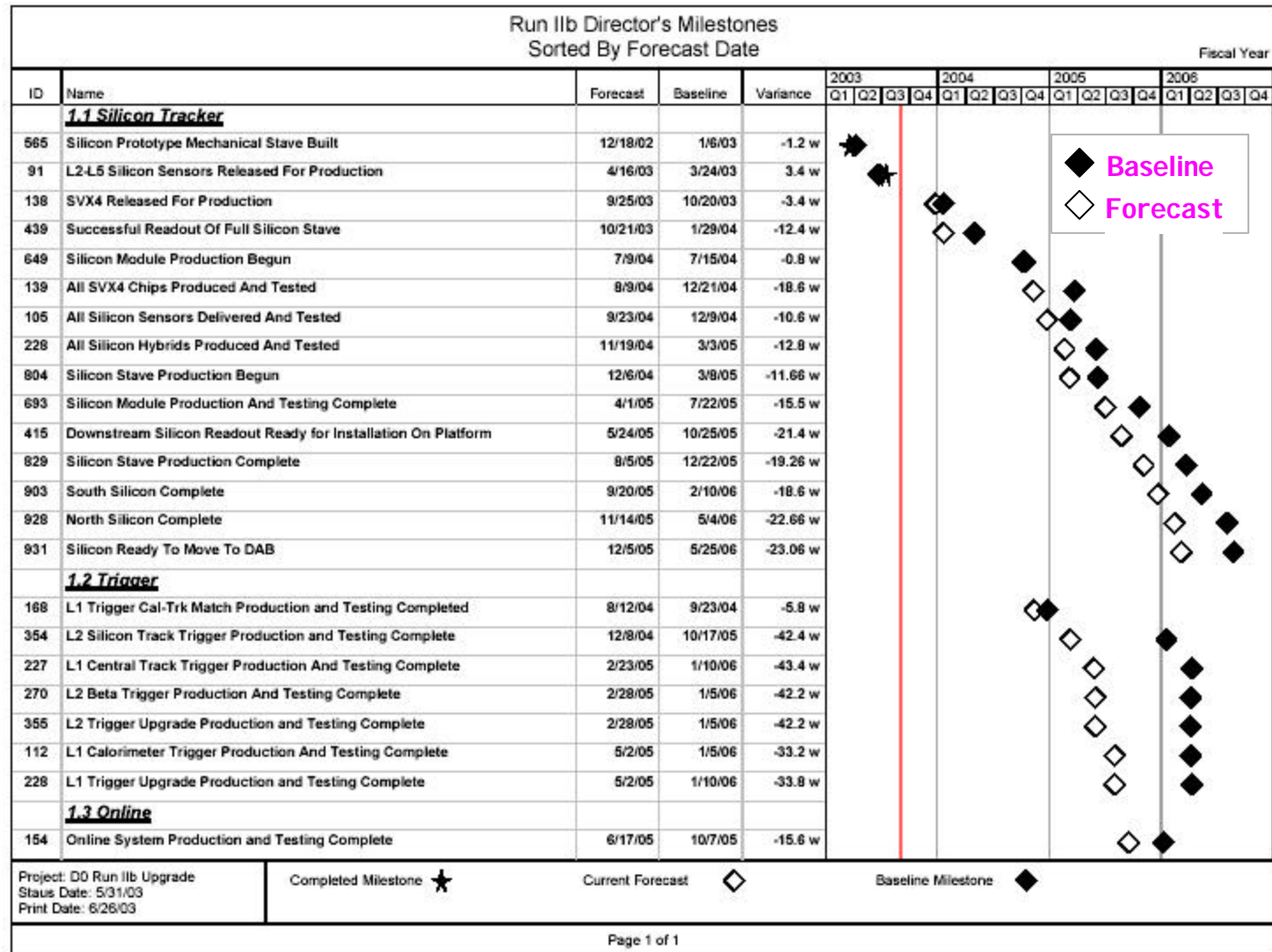


May Milestone Overview

L2/Director's Milestones vs Current Forecast						
(Sorted by L2/Director's Baseline Date)						
Milestone Description	L2/Director's Baseline (4/03)	Last Month's Forecast (4/03)	This Month's Forecast (5/03)	L2/Director's Variance (work days)	Monthly Variance (work days)	Notes
WBS 1.1 Silicon Tracker						
Silicon Prototype Mechanical Stave Built	01/06/03	12/18/02	12/18/02	(6)	0	Complete
L2-L5 Silicon Sensors Released For Production	03/24/03	04/16/03	04/16/03	17	0	Complete
SVX4 Released For Production	10/20/03	09/25/03	09/25/03	(17)	0	
Successful Readout Of Full Silicon Stave	01/29/04	10/13/03	10/21/03	(62)	6	
Silicon Module Production Begun	07/15/04	06/10/04	07/09/04	(4)	20	
All Silicon Sensors Delivered And Tested	12/09/04	09/23/04	09/23/04	(53)	0	
All SVX4 Chips Produced And Tested	12/21/04	08/09/04	08/09/04	(93)	0	
All Silicon Hybrids Produced And Tested	03/03/05	11/12/04	11/19/04	(64)	5	
Silicon Stave Production Begun	03/08/05	11/29/04	12/06/04	(58)	5	
Silicon Module Production And Testing Complete	07/22/05	03/25/05	04/01/05	(78)	5	
Downstream Silicon Readout Ready for Installation On Platform	10/25/05	05/24/05	05/24/05	(107)	0	
Silicon Stave Production Complete	12/22/05	07/29/05	08/05/05	(96)	5	
South Silicon Complete	02/10/06	08/31/05	09/20/05	(93)	13	
North Silicon Complete	05/04/06	11/07/05	11/14/05	(113)	5	
Silicon Ready To Move To DAB	05/25/06	11/28/05	12/05/05	(115)	5	
WBS 1.2 Trigger						
L1 Trigger Cal-Trk Match Production and Testing Completed	09/23/04	08/12/04	08/12/04	-29	0	
L2 Silicon Track Trigger Production and Testing Complete	10/17/05	12/08/04	12/08/04	-212	0	
L1 Calorimeter Trigger Production And Testing Complete	01/05/06	05/31/05	05/02/05	-166	(20)	
L2 Beta Trigger Production And Testing Complete	01/05/06	02/28/05	02/28/05	-211	0	
L2 Trigger Upgrade Production and Testing Complete	01/05/06	02/28/05	02/28/05	-211	0	
L1 Central Track Trigger Production And Testing Complete	01/10/06	02/23/05	02/23/05	-217	0	
L1 Trigger Upgrade Production and Testing Complete	01/10/06	05/31/05	05/02/05	-169	(20)	
WBS 1.3 Online/DAQ						
Online System Production and Testing Complete	10/07/05	06/17/05	06/17/05	(78)	0	



Director's Milestones





Project Status - using project tools

- ◆ With respect to DOE milestones we are doing ok
- ◆ some delays with respect to *aggressive* schedule
 - Silicon
 - SVX4 (design delays)
 - Sensor procurement (procurement delays)
 - silicon readout hybrids (vendor delays)
 - Trigger
 - Cal L1 trigger (design issues)
 - Silicon Track Trigger (waiting for MOU/SOW)
- ◆ still well ahead of baselined Director's milestones
- ◆ Milestones are not the only measure DOE is using
 - Cost Performance Index
 - Schedule Performance Index



The CPI /SPI story

◆ SPI - Schedule Performance Index

• technically the ratio of BCWP/BCWS

- Budgeted Cost of Work Performed - comes from the % complete we update each month in the schedule
- Budgeted Cost of Work Scheduled - comes from baseline schedule
- SPI then gives a "\$ weighted" % complete compared to the baseline
- COBRA CPR reports SPI both for the current month and cumulative to date

• $< 1 \Rightarrow$ behind schedule, $> 1 \Rightarrow$ ahead of schedule

• DOE stoplights

- Green 0.9 - 1.15
- Yellow 0.85-0.89 or 1.15-1.25
- Red < 0.85 or > 1.25



The CPI /SPI story

◆ CPI - Cost Performance Index

• technically the ratio of BCWP/ACWP

- Budgeted Cost of Work Performed - comes from the % complete we update each month in the schedule
- Actual Cost of Work Performed - comes from the actuals loaded into COBRA
- CPI gives you an idea of how well you are conforming to your budget
- For us, because of reporting, it always lags behind
- COBRA CPR reports CPI both for the current month and cumulative to date

• < 1 is over spending; > 1 is under spending

• DOE stoplights

- Green 0.9 - 1.15
- Yellow 0.85-0.89 or 1.15-1.25
- Red < 0.85 or > 1.25



April COBRA Report

Program: DZero RunIib Equipment

Thousands of \$

Report: CPR

Cost Performance Report - Work Breakdown Structure																	
Contractor: Fermi National Accelerator Laboratory Location: Batavia, IL 60510						Contract Type/No:		Project Name/No: DZero RunIib Equipm		Report Period: 4/1/2003 4/30/2003							
Quantity		Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price		Est Price		Share Ratio		Contract Ceiling		Estimated Contract Ceiling	
1		20,621		0		0		20,621		0		0		0		0	
WBS[2] WBS[3]		Current Period						Cumulative to Date						At Completion			
		Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted Cost		Actual Cost Work Performed	Variance			Latest Revised Estimate	Variance			
		Work Scheduled	Work Performed		Schedule	Cost	Work Scheduled	Work Performed		Schedule	Cost						
Item		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)			
1.1 Run Iib Silicon																	
1.1.1 Sensors		22	10	0	-12	10	26	10	0	-16	10	1,689	1,689				
1.1.2 Readout System		38	6	0	-32	6	77	30	0	-47	30	3,482	3,482				
1.1.3 Mechanical Design and Fabrication		31	10	0	-21	10	31	58	0	27	58	844	844				
1.1.4 Detector Production and Testing		41	9	4	-32	6	68	97	4	29	93	1,218	1,218				
1.1.5 Silicon Barrel Assembly		0	0	0	0	0	0	0	0	0	0	1,950	1,950				
1.1.6 Monitoring		0	1	6	0	-6	0	1	6	1	-5	84	84				
1.1.8 Administration		13	13	0	0	13	28	28	0	0	28	469	469				
WBS[2]Totals:		146	49	10	-96	39	230	224	10	-6	214	9,736	9,737				
1.2 Run Iib Trigger Upgrade																	
1.2.1 Level 1 Calorimeter Trigger		0	0	0	0	0	0	0	0	0	0	534	534				
1.2.2 Level 1 Calorimeter Track Matching		20	3	17	-17	-14	69	17	17	-51	1	265	265				
1.2.3 Level 1 Tracking		0	0	0	0	0	0	0	0	0	0	395	395				
1.2.4 Level 2 Beta Processor		0	0	0	0	0	0	0	0	0	0	61	61				
1.2.5 Silicon Track Trigger Upgrade		48	0	0	-48	0	60	0	0	-60	0	263	263				
1.2.7 Administration		0	0	0	0	0	1	1	0	0	1	7	7				
WBS[2]Totals:		69	3	17	-65	-13	129	18	17	-111	1	1,525	1,525				
1.3 Online Systems																	
1.3.1 Level 3 Systems		0	0	0	0	0	0	0	0	0	0	272	272				
1.3.2 Network and Host Systems		0	0	0	0	0	0	0	0	0	0	531	531				
1.3.3 Control Systems		1	1	0	0	1	1	1	0	-1	1	226	226				
1.3.4 DAQ/Online Management		1	1	0	0	1	1	1	0	0	1	21	21				
WBS[2]Totals:		1	1	0	0	1	3	2	0	-1	2	1,050	1,050				
1.4 Run Iib Project Administration																	
1.4.1 FY03 Administration		37	37	24	0	13	105	105	48	0	57	285	285				
1.4.2 FY04 Administration		0	0	0	0	0	0	0	0	0	0	409	409				
1.4.3 FY05 Administration		0	0	0	0	0	0	0	0	0	0	423	423				
1.4.4 FY06 Administration		0	0	0	0	0	0	0	0	0	0	386	386				
WBS[2]Totals:		37	37	24	0	13	105	105	48	0	57	1,502	1,502				
Gen. and Admin.		0	0	0	0	0	0	0	0	0	0	0	0				
Undist. Budget												0	0				
Sub Total		253	91	51	-162	41	466	349	75	-117	275	13,814	13,813				
Management Resrv.												6,807	6,807				
Total		253	91	51	-162	41	466	349	75	-117	275	20,621	20,621				

Equipment only

~3.4% of
project
scheduled
complete

Current period

cumulative



May COBRA Report

Program: DZERO RUNIIB

Thousands of \$

Report: CPR

Cost Performance Report - Work Breakdown Structure																	
Contractor: Location:		Fermi National Accelerator Laboratory Batavia				Contract Type/No:		Project Name/No: DZero RunIb Equipm		Report Period: 4/30/2003 5/31/2003							
Quantity		Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %		Tgt. Price		Est Price		Share Ratio		Contract Ceiling		Estimated Contract Ceiling	
1		20,621		0		0		20,621		0		0		0		0	
WBS[2] WBS[3]		Current Period					Cumulative to Date					At Completion					
		Budgeted Cost		Actual Cost Work	Variance		Budgeted Cost		Actual Cost Work	Variance		Latest Revised Estimate					
		Work Scheduled	Work Performed	Performed	Schedule	Cost	Work Scheduled	Work Performed	Performed	Schedule	Cost				Budgeted	Estimate	Variance
Item		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		
1.1 Run Iib Silicon																	
1.1.1 Sensors			21	24	0	3	24	48	34	0	-14	34	1,688	1,688			
1.1.2 Readout System			11	-10	0	-21	-10	37	20	0	-17	20	3,490	3,491			
1.1.3 Mechanical Design and Fabrication			41	32	0	-9	32	64	90	0	26	90	843	843			
1.1.4 Detector Production and Testing			33	8	16	-25	-8	101	105	20	5	85	1,218	1,218			
1.1.5 Silicon Barrel Assembly			0	0	0	0	0	0	0	0	0	0	1,950	1,950			
1.1.6 Monitoring			1	0	0	-1	0	1	1	6	0	-5	84	84			
1.1.8 Administration			15	19	0	4	19	47	47	0	0	47	466	466			
WBS[2]Totals:			122	73	16	-48	57	297	298	27	0	271	9,740	9,740			
1.2 Run Iib Trigger Upgrade																	
1.2.1 Level 1 Calorimeter Trigger			0	0	0	0	0	0	0	0	0	0	534	534			
1.2.2 Level 1 Calorimeter Track Matching			8	-3	-17	-12	13	29	14	0	-15	14	266	266			
1.2.3 Level 1 Tracking			0	0	0	0	0	0	0	0	0	0	395	395			
1.2.4 Level 2 Beta Processor			0	0	0	0	0	0	0	0	0	0	61	61			
1.2.5 Silicon Track Trigger Upgrade			3	0	0	-3	0	7	0	0	-7	0	263	263			
1.2.7 Administration			0	0	0	0	0	1	1	0	0	1	7	7			
WBS[2]Totals:			11	-3	-17	-14	14	37	15	0	-22	15	1,526	1,526			
1.3 Online Systems																	
1.3.1 Level 3 Systems			0	0	0	0	0	0	0	0	0	0	272	272			
1.3.2 Network and Host Systems			0	0	0	0	0	0	0	0	0	0	531	531			
1.3.3 Control Systems			1	0	0	0	0	2	1	0	-1	1	226	226			
1.3.4 DAQ/Online Management			1	1	0	0	1	2	2	0	0	2	21	21			
WBS[2]Totals:			1	1	0	0	1	4	3	0	-1	3	1,050	1,050			
1.4 Run Iib Project Administration																	
1.4.1 FY03 Administration			36	36	21	0	15	140	140	68	0	72	285	285			
1.4.2 FY04 Administration			0	0	0	0	0	0	0	0	0	0	409	409			
1.4.3 FY05 Administration			0	0	0	0	0	0	0	0	0	0	423	423			
1.4.4 FY06 Administration			0	0	0	0	0	0	0	0	0	0	386	386			
WBS[2]Totals:			36	36	21	0	15	140	140	68	0	72	1,502	1,502			
Gen. and Admin.			0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Undist. Budget																	
Sub Total			170	107	20	-63	87	479	456	95	-23	361	13,818	13,818			
Management Resrv.													6,803	6,803			
Total			170	107	20	-63	87	479	456	95	-23	361	20,621	20,621			
*Adjusted Total			170	107	20	-63	87	479	456	380	-23	76	20,621	20,621			

*\$135K of accruals that should have been incurred in the month of May were added to the ACWP and \$150K in effort corrections. The effort correction is reflected in the June report; the accruals will be brought up-to-date in the July reporting period.

Equipment only

~3.5% of project scheduled complete

V.

May, 2003

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5-Jul-03



What is our SPI /CPI ?

◆ April

- ◆ cumulative SPI = 0.75
- ◆ cumulative CPI = 4.6

◆ May

- ◆ cumulative SPI = 0.95
 - are formally entering change controls for this
- ◆ cumulative CPI = 1.2
 - some equipment erroneously charged to R&D - fixed for next month, fixed by hand for May
 - accruals put in by hand



What we learn from this

- SPI

- ◆ change control will be implemented for more than just missing/slipping milestones
- ◆ tasks that contribute “significantly” to SPI must submit change control
- ◆ all of these change controls are internal to the project
 - need to be signed off by L3/L2/PM
 - needed to keep the project on track!

- CPI

- ◆ by definition this lags because of project accounting system
 - using costs, not obligations
 - fixed by calculating accruals each month



Schedule/Status conclusions

- ◆ Upcoming (internal) Change Controls
 - digital jumper cables (no longer needed for test stands)
 - we've known this for a while, but have ignored it since it isn't critical path
 - STT (delayed due to MOU/SOW)
 - Cal Track-Match (delays due to delays in procurement/PRRs)
- ◆ None of these are critical path items
- ◆ We are in the process of formally signing off on these
 - internal to project (no cost \$ or director's milestones involved)
 - still we need L3/L2/PM signatures



Summary

- Continuing to manage aggressively
 - ◆ Forecast completion date slipped slightly from November 28 to December 5, 2005; EIR/DOE schedule finish May 25, 2006
 - ◆ Regularly reviewing schedule to optimize the plan
 - Looking at variances from aggressive schedule
 - Month-to-month differences in forecasts
 - Variance wrt DOE baseline dates
 - Missed L2-L5 sensor order baseline date by 3.4 weeks
 - Current forecast is within 4 days of baseline date for “Silicon Module Production Begun” (7/15/04). Exploring ways to mitigate.
 - Other milestones have significant cushion remaining.
- SPI/CPI being used to keep project on track
 - forces us to better document project via change control
 - keeps our focus on all tasks, not just critical path items